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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/706,039

11/13/2003

Shinji Imai

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04/19/2006

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EXAMINER

BAKER, DAVID S

ART UNIT

PAPER NUMBER

2884

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,039

Applicant(s)

IMAI, SHINJI



Examiner

David S. Baker

Art Unit

2884

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/13/2003, 04/10/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 1-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/13/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/13/03, 03/22/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species B (claims 13-17) in the reply filed on 04/10/2006 is acknowledged.

Claim Objections

2. Claim 15 is objected to under 37 CFR 1.75(c) as being in improper form because a dependent claim may not be dependent upon itself. See MPEP § 608.01(n). However, the examiner has interpreted the claim language "A radiographic-image recording medium according to claim 15" to read -- A radiographic-image recording medium according to claim 13 --.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (US Patent Application Publication #2002/0121606 A1) in view of Fukui (US Patent #6,075,250 A), Shoji (US Patent #6,614,045 B2), and Izumi (US Patent Application Publication #2002/0092992 A1).

Regarding claim 13, Okada discloses a radiographic image recording medium comprising a wavelength conversion layer (113, figure 1, paragraphs 0057-0064) with a

support layer (111, figure 1, paragraphs 0057-0064) and a photoelectric conversion layer (102, figure 1, paragraphs 0057-0064) with a base layer comprised of a glass substrate (101, figure 1, paragraphs 0057-0064). Okada does not disclose expressly that the support is transparent to radiation for use in recording or that it is resistant to shock, or that the base layer comprises a plate of shock resistant material onto which a thin glass film is formed. Fukui discloses a support disposed over a radiographic image recording medium that is transparent to radiation for use in recording and resistant to shock (figure 3, column 1 lines 39-48, column 4 lines 9-20). Shoji discloses a radiographic image recording medium with a substrate that comprises a markedly thin glass layer (5, figure 1, column 7 lines 30-38, column 8 lines 37-67) that is disposed on a base plate substrate. Izumi discloses a radiation detection device with a substrate that is resistant to shock (figures 2 and 3, paragraphs 0020-0024 and 0067-0079). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to dispose the radiographic image recording medium upon a thin glass film and shock resistant base plate substrate while providing a shock resistant protective support for the wavelength conversion layer. The suggestion/motivation for doing so would have been to improve the durability of the device as well as allow for safe transportation of the device such that the substrate would not be damaged due to physical shock while also maintaining a slim profile to cut down on weight, space, and distorting effects due to the substrate medium.

Regarding claim 15, in so far as it is understood that claim 15 is meant to depend upon claim 13, Okada discloses a wavelength conversion layer (110) that is bonded to a scintillation panel (100, figure 1, paragraphs 0018-0025, 0057-0072, 0173) using an

acrylic resin adhesion layer that is transparent to electromagnetic waves emanating from the wavelength conversion layer. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a transparent viscoelastic adhesive such as an acrylic resin layer such as that used by Okada to bond the wavelength conversion layer to the first electrode layer. The suggestion/motivation for doing so would have been to increase the durability of the radiographic imaging panel by bonding the layers together while choosing a bonding material that would not be detrimental to the operation of the radiographic imaging apparatus.

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (US Patent Application Publication #2002/0121606 A1), Fukui (US Patent #6,075,250 A), Shoji (US Patent #6,614,045 B2), and Izumi (US Patent Application Publication #2002/0092992 A1) as applied to claim 13 above, and further in view of Sato (US Patent Application Publication #2002/0148949 A1).

Regarding claim 14, Okada, Fukui, Shoji, and Izumi do not disclose expressly a base substrate and support made of material having approximately identical thermal expansion coefficients. Sato discloses a radiation detector that comprises a support layer (5, figures 1 and 9, paragraphs 12 and 0059-0063) on the top of the device as well as a base substrate layer (6, figures 1 and 9, paragraphs 12 and 0059-0063) below the device wherein both the support and substrate are made of materials with approximately identical thermal expansion coefficients. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to match the thermal expansion coefficients of the support with the substrate. The suggestion/motivation for doing so

would have been to improve the durability of the device by using material with approximately identical thermal expansion coefficients; the chances of the device breaking due to thermal stress or exfoliation would be minimized.

6. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (US Patent Application Publication #2002/0121606 A1) in view of Fukui (US Patent #6,075,250 A) and Shoji (US Patent #6,614,045 B2).

Regarding claim 16, Okada discloses a radiographic image recording medium comprising a wavelength conversion layer (113, figure 1, paragraphs 0057-0064) with a support layer (111, figure 1, paragraphs 0057-0064) and a photoelectric conversion layer (102, figure 1, paragraphs 0057-0064) with a base layer comprised of a glass substrate (101, figure 1, paragraphs 0057-0064). Okada does not disclose expressly that the support is transparent to radiation for use in recording or that it is resistant to shock, or that the base layer comprises a plate of shock resistant material onto which a thin glass film is formed. Fukui discloses a support disposed over a radiographic image recording medium that is transparent to radiation for use in recording and resistant to shock (figure 3, column 1 lines 39-48, column 4 lines 9-20). Shoji discloses a radiographic image recording medium with a substrate that comprises a markedly thin glass layer (5, figure 1, column 7 lines 30-38, column 8 lines 37-67). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to dispose the radiographic image recording medium upon a thin glass film substrate while providing a shock resistant protective support for the wavelength conversion layer. The suggestion/motivation for doing so would have been to improve the durability of the

device as well as allow for safe transportation of the device such that the substrate would not be damaged due to physical shock while also maintaining a slim profile to cut down on weight, space, and distorting effects due to the substrate medium.

Regarding claim 17, Okada discloses a wavelength conversion layer (110, figure 1, paragraphs 0018-0025, 0057-0072, 0173) that is bonded to a scintillation panel (100, figure 1, paragraphs 0018-0025, 0057-0072, 0173) using an acrylic resin adhesion layer that is transparent to electromagnetic waves emanating from the wavelength conversion layer. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a transparent viscoelastic adhesive such as an acrylic resin layer such as that used by Okada to bond the wavelength conversion layer to the first electrode layer. The suggestion/motivation for doing so would have been to increase the durability of the radiographic imaging panel by bonding the layers together while choosing a bonding material that would not be detrimental to the operation of the radiographic imaging apparatus.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Baker whose telephone number is 571-272-6003. The examiner can normally be reached on MTWRF 10:30-7:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2884

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David S Baker
Examiner
Art Unit 2884

DSB



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